AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) Method for inflating a tyre (5) on a vehicle wheel (3) by means of an inflation machine (2) controlled by a programmable data management unit (17), the said method ~~consisting of~~ comprising the steps of:

a) using a wheel (3) where at least one of the components (4, 5 and 6) of the wheel (3) is provided with an information medium (7, 8, 9) carrying a temperature sensor (20) able to supply the value of the temperature of the tyre (5) on the wheel, the said information medium (7, 8, 9) being able to be consulted automatically and able to supply, when it is consulted, at least one data item (T_p) that can be used for inflating the tyre,

b) automatically consulting the said information medium (7, 8 or 9) and automatically transmitting to the said programmable data management unit (17) at least the value of the temperature (T_p) of the tyre supplied by the temperature sensor (20),

c) supplying to the programmable data management unit (17) at least one data item for defining a set value (P_c) for the inflation pressure of the tyre (5),

d) measuring the ambient temperature on the site of the inflation machine (2),

e) calculating an average value of the said ambient temperature over a predefined elapsed time period,

f) calculating, on the basis of the said set value (P_c) for the inflation pressure, a corrected set value (P_{cc}) taking account of the value of the temperature (T_p) of the tyre (5) supplied by the temperature sensor (20), the corrected set value P_{cc} being calculated according to the formula

$$P_{cc} = P_c \cdot \frac{T_p}{T_{ref}}$$

in which P_c is the said set value for the inflation pressure, T_p is the temperature of tyre (5) supplied by the temperature sensor (20) and T_{ref} is a variable reference temperature chosen as being the lowest temperature amongst the instantaneous ambient temperature measured on the site of the inflation machine (2) and the said calculated average value of the ambient temperature, the pressures P_c and P_{cc} being in absolute value and the temperatures T_p and T_{ref} being in degrees K,

g) measuring the value of the pressure of the air inside the tyre (5),

h) adjusting, by inflation or deflation, the value of the pressure of the air inside the tyre to the calculated corrected set value (P_{cc}).

2. (Original) Method according to claim 1, characterised by the fact that at step e) the average value of the ambient temperature is calculated over a period of 24 hours.

3. (Original) Method according to claim 1, characterised by the fact that at step e) the average value of the ambient temperature is calculated over a period of 12 hours.

4. (Original) Method according to any one of claims 1 to 3, characterised by the fact that at step c) the said at least one data item for defining a set value (P_c) for the inflation pressure is supplied automatically by the automatic consultation of the said information medium (7, 8 or 9) carried out at step b).

5. (Original) Method according to any one of claims 1 to 4, characterised by the fact that at step c) the said at least one data item for defining a set value (P_c) for the inflation pressure is supplied by a user of the inflation machine (2) by entering the said at least one data item by means of a keyboard (30).

[[5]] 6. (Currently Amended) Method according to any one of claims 1 to 5, also characterised by the step consisting of:

i) measuring the atmospheric pressure on the site of the inflation machine (2),

and by the fact that, at step f), the corrected set value P'_{cc} in relative value is calculated according to the formula:

$$P'_{cc} = (P'_c + P_{atm}).\lfloor (t_p + 273)/(t_{ref} + 273) \rfloor - P_{atm}$$

in which P'_c is the said set value, in relative value, for the inflation pressure, P_{atm} is the value of the atmospheric pressure measured, T_p and T_{ref} are the said temperature of the tyre and the said variable reference temperature in degrees C.

7. (Currently Amended) Method according to any one of claims 1 to 6, also characterised by the step ~~consisting of~~ comprising:

j) supplying to the programmable data management unit (17) at least one additional item of information chosen from the group comprising information indicating the model of the vehicle (V) fitted with the wheel (3) whose tyre (5) is to be inflated, information indicating whether the said tyre (5) to be inflated belongs to a front or rear axle, information indicating a state of loading of the vehicle (V) and information indicating on what type of road the user intends to travel,

and by the fact that at least one additional item of information is taken into account, in combination with the said data supplied at step c), to define the set value (P_c) for the inflation pressure to be used for calculating the corrected set value (P_{cc}).

8. (Currently Amended) Method according to any one of claims 1 to 7, characterised by the fact that after step h) there are also provided the steps ~~consisting of~~ comprising::

k) repeating step b),

l) checking whether the temperature (T_p) of the tyre (5) supplied by the temperature sensor (20) at step k) has changed by more than a predefined quantity with respect to the temperature of the tyre supplied by the temperature sensor at step b),

m) if the result of the check carried at step l) is positive, repeating steps f) to h) using, in the formula for calculating the corrected set value, the value of the temperature of the tyre supplied by the temperature sensor at step k), otherwise sending an end of inflation message.

9. (Original) Method according to any one of claims 1 to 8, characterised in that at step g) the value of the pressure inside the tyre (5) is measured by a first pressure sensor (35) situated in the inflation machine.

10. (Original) Method according to claim 9, in which the information medium (7, 8 or 9) carries a second pressure sensor (16) able to supply the value of the pressure of the air inside the tyre (5), characterised by the fact that

- at step b), the value of the pressure supplied by the second pressure sensor (16) is also transmitted to the programmable data management unit (17),

- at step g), the value of the pressure of the air inside the tyre (5) measured by the first pressure sensor (35) is compared with the value of the pressure supplied by the second pressure sensor (16) and the error signal is produced and counted if the pressure values supplied by the first and second sensors differ by more than a predefined quantity.

11. (Original) Method according to claim 10, characterised by the fact that an error message is sent if the number of error signals counted reaches a predefined number during successive inflation operations, and the inflation machine (3) is put out of service.

12. (Original) Device for inflating a tyre (5) on a vehicle wheel (3), comprising:

a) at least one automatically consultable information medium (7, 8 or 9) carried by at least one of the components (4, 5 or 6) of the wheel (3) whose tyre (5) is to be inflated, the said information medium carrying a first temperature sensor (20) able to supply the value of the temperature of the tyre (5) on the wheel (3) and being able to supply, when it is consulted, at least one data item (T_p) that can be used for inflating the tyre (5),

b) a consultation and transmission means (19) able to automatically consult the said information medium (7, 8 or 9) and to automatically transmit the said at least one data item to a programmable data management unit (17) ,

c) the said programmable data management unit (17),

d) a second temperature sensor (27) for measuring the ambient temperature on the site of the inflation machine (2),

e) calculation means included in the said programmable data management unit (17) for calculating a corrected set value (P_{cc}) for the inflation pressure of the tyre (5) to be inflated, on the basis of a set value (P_c) for the inflation pressure defined from at least one data item supplied to the said programmable data management unit (17), and taking account of the value of the temperature (T_p) of the tyre supplied by the first temperature sensor (20), the programmable data management unit (17) being programmed so that the said calculation means calculate an average value of the said ambient temperature over a predefined elapsed time period, and calculate the corrected set value P_{cc} according to the formula:

$$P_{cc} = P_c \cdot \frac{T_p}{T_{ref}}$$

in which P_c is the said set value for the inflation pressure, T_p is the temperature of the tyre (5) supplied by the first temperature sensor (20) and T_{ref} is a variable reference temperature that is chosen as being the lowest temperature from amongst the instantaneous ambient temperature measured on the site of the inflation machine (2) by the second temperature sensor (37) and the said calculated average value of the ambient temperature, the pressures P_c and P_{cc} being in absolute value and the temperatures T_p and T_{ref} being in degrees K,

f) at least one means (35, 16) for measuring the value of the pressure of the air inside the said tyre (5) to be inflated and for supplying the value of the measured pressure to the said programmable data management unit (17),

g) an inflation machine (2), controlled by the said programmable data management unit (17) for adjusting the value of the pressure of the air inside the tyre (5) to the correct set value (P_{cc}) calculated by the said calculation means.

13. (Original) Device according to claim 12, characterised by the fact that the information medium (7, 8 or 9) comprises a memory (11) containing, by way of the said at least one data item, the set value (P_c) for the inflation pressure.

14. (Original) Device according to claim 12, characterised by the fact that the information medium (7, 8 or 9) comprises a memory (11) containing, by way of the said at least one data item, an identification data item relating to the tyre (5) to be inflated.

15. (Original) Device according to claim 14, characterised by the fact that the programmable data management unit (17) comprises a memory (18) containing a lookup table comprising the identification data of all the tyres liable to be inflated by means of the inflation machine (2) and, for each identification data item, several set values for the inflation pressure that themselves depend on at least one supplementary item of information chosen from the group comprising information indicating the model of the vehicle (V) to which the wheel (3) whose tyre (5) is to be inflated belongs, information indicating whether the said tyre (5) belongs to a front or rear axle, information indicating a state of loading of the vehicle (V) and information indicating on which type of road the user has the intention of travelling.

16. (Original) Device according to claim 15, characterised by a keyboard (30) for entering the said at least one supplementary item of information in the said programmable data management unit (17), and by the fact that the said programmable data management unit (17) is programmed to select, as the set value (P_c) in the lookup table, the set value corresponding to the said identification data item and to the said at least one supplementary item of information entered by means of the keyboard (30).

17. (Original) Device according to any one of claims 12 to 16, characterised by the fact that it comprises, by way of the said means for measuring the value of the pressure of the air inside the tyre (5), a first pressure sensor (35) that is situated in the inflation machine (2) and that is in communication, from the fluid point of view,

with the said tyre (5) when the inflation machine is connected to an inflation valve (10) of the wheel (3).

18. (Original) Device according to any one of claims 12 to 17, characterised in that it comprises, by way of the said means for measuring the value of the pressure of the air inside the tyre (5), a second pressure sensor (16) that is carried by the said information medium (7, 8 or 9), and by the fact that the said information medium is able to supply, when it is consulted, the value of the pressure measured by the second pressure sensor (16) to the said programmable data management unit (17).

19. (Original) Device according to claims 17 and 18, characterised by the fact that the programmable data management unit (17) is programmed so as to compare the pressure values supplied by the first and second pressure sensors (35, 16) and to produce and count an error signal if the said pressure values differ by more than a predefined quantity.

20. (Original) Device according to claim 19, characterised by the fact that the programmable data management unit (17) is programmed so as to send an error message if the number of error signals counted in the course of successive inflation operations reaches a predefined number and to put the inflation machine (2) out of service.

21. (Original) Device according to any one of claims 12 to 20, characterised in that it comprises a third pressure sensor (38) installed so as to measure the atmospheric pressure on the site of the inflation machine (2), and by the fact that the programmable data management unit (17) is programmed so as to calculate the corrected set value P'_{cc}, in relative value, according to the formula:

$$P'_{cc} = (P'_c + P_{atm}).\lfloor (t_p + 273)/(t_{ref} + 273) \rfloor - P_{atm}$$

in which P'_c is the said set value, in relative value, for the inflation pressure, P_{atm} is the value of the atmospheric pressure measured by the third pressure sensor (38), and T_p and T_{ref} are respectively the said temperature of the tyre and the said variable reference temperature in degrees C.

22. (Original) Inflation machine for vehicle wheels having at least one component (4, 5 or 6) that is provided with an information medium (7, 8 or 9) carrying a first temperature sensor (20) able to supply the value of the temperature of the tyre (5) on the corresponding wheel (3), the said information medium (7, 8 or 9) being automatically consultable and able to supply, when it is consulted, at least one data item (T_p) that can be used for inflating the tyre, the said machine (2) comprising:

a) a consultation and transmission means (19) able to automatically consult the said information medium (7, 8 or 9) and to automatically transmit the said at least one data item to a programmable data management unit (17),

b) the said programmable data management unit (17),

c) a second temperature sensor (27) for measuring the ambient temperature on the site of the inflation machine (2),

d) calculation means included in the said programmable data management unit (17) for calculating a corrected set value (P_{cc}) for the inflation pressure of the tyre (5) to be inflated, on the basis of a set value (P_c) for the inflation pressure defined from at least one data item supplied to the said programmable data management unit (17), and taking account of the value of the temperature (T_p) of the tyre supplied by the first temperature sensor (20), the programmable data management unit (17) being programmed so that the said calculation means calculate an average value of the said ambient temperature over a predefined elapsed time period, and calculate the corrected set value P_{cc} according to the formula:

$$P_{cc} = P_c \cdot \frac{T_p}{T_{ref}}$$

in which P_c is the said set value for the inflation pressure, T_p is the temperature of the tyre (5) supplied by the first temperature sensor (20) and T_{ref} is a variable reference temperature that is chosen as being the lowest temperature from amongst the instantaneous ambient temperature measured on the site of the inflation machine (2) by the second temperature sensor (37) and the said calculated average value of the ambient temperature, the pressures P_c and P_{cc} being in absolute value and the temperatures T_p and T_{ref} being in degrees K,

e) a pressure sensor (35) able to measure the value of the pressure of the air inside the said tyre (5) to be inflated and for supplying the value of the measured pressure to the said programmable data management unit (17),

f) inflation means (24-29) controlled by the said programmable data management unit (17) for adjusting the value of the pressure of the air inside the tyre (5) to the corrected set value (P_{cc}) calculated by the said calculation means.

23. (Original) Inflation machine according to claim 22, characterised by the fact that the programmable data management unit (17) comprises a memory (18) containing a lookup table comprising the identification data of all the tyres liable to be inflated by means of the inflation machine (2) and, for each identification data item, several set values for the inflation pressure that themselves depend on at least one supplementary item of information chosen from the group comprising information indicating the model of the vehicle (V) to which the wheel (3) whose tyre (5) is to be inflated belongs, information indicating whether the said tyre (5) belongs to a front or rear axle, information indicating a state of loading of the vehicle (V) and information indicating on which type of road the user has the intention of travelling.

24. (Original) Inflation machine according to claim 23, characterised by a keyboard (30) for entering the said at least one supplementary item of information in the said programmable data management unit (17), and by the fact that the said programmable data management unit (17) is programmed to select, as the set value

(P_c) in the lookup table, the set value corresponding to the said identification data item and to the said at least one supplementary item of information entered by means of the keyboard (30).

25. (Original) Inflation machine according to any one of claims 22 to 24, characterised by the fact that it comprises, by way of the said means for measuring the value of the pressure of the air inside the tyre (5), a first pressure sensor (35) that is situated in the inflation machine (2) and that is in communication, from the fluid point of view, with the said tyre when the inflation machine is connected to an inflation valve (10) of the wheel (3).

26. (Original) Inflation machine according to claim 25, characterised by the fact that the programmable data management unit (17) is programmed so as to compare the pressure values supplied by the first and second pressure sensors (35, 16) and to produce and count an error signal if the said pressure values differ by more than a predefined quantity.

27. (Original) Inflation machine according to claim 26, characterised by the fact that the programmable data management unit (17) is programmed so as to send an error message if the number of error signals counted in the course of successive inflation operations reaches a predefined number and to put the inflation machine (2) out of service.

28. (Original) Inflation machine according to any one of claims 22 to 27, characterised by the fact that it comprises a third pressure sensor (38) installed so as to measure the atmospheric pressure on the site of the inflation machine (2), and by the fact that the programmable data management unit (17) is programmed so as to calculate the corrected set value P'_{cc}, in relative value, according to the formula:

$$P'_{cc} = (P'_c + P_{atm}).\lfloor (t_p + 273)/(t_{ref} + 273) \rfloor - P_{atm}$$

in which P'_c is the said set value, in relative value, for the inflation pressure, P_{atm} is the value of the atmospheric pressure measured by the third pressure sensor (38), T_p and T_{ref} are respectively the said temperature of the tyre and the said variable reference temperature in degrees C.